

REMARKS/ARGUMENTS

Applicants respectfully request reconsideration and allowance of the subject application.

Claims 1-30 were originally filed.

Claims 1, 3, 5, 7, 9, 11, 15, 19, 23, 25-27 are currently amended.

Accordingly, claims 1-30 are pending.

Claim Rejections – 35 USC §102(e)

Claims 1-30:

Claims 1-30 have been rejected under 35 U.S.C. §102(e) as being anticipated by Shiratsuki et al (US6,657,185). Applicant respectfully traverses Examiner's rejection.

With regards to claims 1-12 and 25-27, Examiner states in pertinent part that:

[...] Shiratsuki et al teach of a pattern detector [...] in accordance with figure 12 [...]

Claim 1, 25 have been amended to recite with the corresponding underlined limitations:

1. (Currently amended): An ultra-thin optical fingerprint sensor with anamorphic optics comprising:

an image receiving panel;

an anamorphic optical lens of at least two optical magnification power;

a light source to illuminate the image receiving panel creating an illuminating light path;

a folding mirror to fold a light reflection from an image deposited on the image receiving panel through the image receiving panel to the anamorphic lens creating a folded light path; and

an image sensor; wherein the image sensor captures the light reflection optically compensated by the anamorphic optical lens;

wherein the folded light path defines a ~~principal~~ plane; wherein the illuminating light path does not lie in the ~~principal~~ plane; and wherein the illuminating path is substantially parallel to said image receiving panel.

25. (Currently amended): A method for ultra-thin optical fingerprint sensor comprising:

illuminating an image receiving panel via a light source creating an illuminating light path, wherein the illuminating light path is substantially parallel to said image receiving panel;

receiving an image on the image receiving panel;

folding a light reflection from the image through the image receiving panel to an anamorphic lens creating a folded light path; wherein the folded light path defines a ~~principal~~ plane; wherein the illuminating light path does not lie in the ~~principal~~ plane;

processing the received image through the anamorphic lens; and

capturing and storing the processed image from the anamorphic lens.

Support for these amendments are found in figure 3 and 4 and page 7, line 20 through page 8, line 4 of the Applicant's specification.

In response to Examiner's arguments, Applicant directs Examiner's attention to Figure 7 of Shiratsuki et al. Examiner argues that Figure 7 "clearly shows the folded beam reflected from the mirror (2c) and the illuminating light path does not lie in the same plane and the illuminating light path does not lie in the principal plane of the folded beam path". Applicant respectfully disagrees. Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would recognize that the plane defined by the folded light path as in Claims 1 and 25, is the plane defined by the two vectors of the folded light path, 103; the incident light from the image receiving panel and the reflected light reflection. Thus the plane defined by the folded light path is substantially perpendicular to the image receiving panel or fingerprint-capturing panel 202 of Figures 2 and 3.

Applicant respectfully submits that Figure 7 of Shiratsuki et al clearly shows that the illuminating light paths, L1, are substantially perpendicular to detection face 2b and substantially parallel to the plane defined by folded light path L2, and thus, are not substantially parallel to detection face 2b. As illustrated in Figure 3 of the current application, the light sources or LEDs, are positioned such that the illuminating light path is substantially parallel to the image receiving panel or fingerprint-capturing panel 202, and thus, the illuminating light path is also substantially perpendicular to the plane define by the folded light path.

Applicant respectfully submits that the difference between the illuminating light paths of the pattern detector for capturing images as disclosed in Shiratsuki et al and the ultra-thin finger print sensor with anamorphic optics of the present application is significant. In the pattern detector of Shiratsuki, image formation is dependent on total internal reflection (TIR) condition to detect the presence of the finger surface. In areas where a finger is in contact with detection face 2b, the TIR condition is not met and thus light is not reflected from those areas. In such a system, the areas in contact with a finger are dark. In the ultra-thin finger print sensor of the present application, the an image of a fingerprint is formed by illuminating areas of the finger print that touch the fingerprint-capturing plane 202 and thus areas in contact with a finger appear light.

Applicant respectfully submits that Shiratsuki does not disclose, “an illuminating path is substantially parallel to said image receiving panel.” Thus Claims 1 and 25 as amended are not anticipated by Shiratsuki et al, and thus are allowable.

Claims 5, 9, 26-27 are amended to add the same limitation as amended Claim 1 to differentiate from Shiratsuki, and are thus are allowable.

Claims 2-4 depend on Claim 1 and thus are allowable.

Claims 6-8 depend on Claim 5 and thus are allowable.

Claims 10-12 depend on Claim 9 and thus are allowable.

With regards to claims 13-24 and 28-30, Examiner states in pertinent part that:

[...] Shiratsuki et al teach of a pattern detector [...] in accordance with figure 12 [...] a bending mirror to bend light reflection [...]

Claims 5, 9, 25-27 are amended to add the same limitation as amended Claim 1 to differentiate from Shiratsuki, and are thus are allowable.

Claims 13-16 depend on Claim 1 and thus are allowable.

Claims 17-20 depend on Claim 5 and thus are allowable.

Claims 21-24 depend on Claim 9 and thus are allowable.

Claims 28 depends on Claim 25 and thus is allowable.

Claims 29 depends on Claim 26 and thus is allowable.

Claims 30 depends on Claim 27 and thus is allowable.

CONCLUSION

In view of the foregoing, Applicants respectfully submit that claims are in condition for allowance, and thus, reconsideration of the rejections is requested.

Respectfully submitted,



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